REMARKS

Favorable reconsideration of this application is respectfully requested in view of the amendments above and the following remarks. By virtue of the claim amendments, Claims 15 has been canceled without prejudice or disclaimer of the subject matter contained therein. In addition, Claim 1 has been amended and Claim 22 has been added. Therefore, Claims 1-12 and 16-22 are currently pending in the present application.

No new matter has been introduced by way of the claim amendments or additions, and entry thereof is therefore respectfully requested.

Second Non-Final Office Action

It is noted that the outstanding Office Action has not been made Final because Claim 15 was not addressed in the original Office Action.

Claim Rejection Under 35 U.S.C. §102

The test for determining if a reference anticipates a claim, for purposes of a rejection under 35 U.S.C. § 102, is whether the reference discloses all the elements of the claimed combination, or the mechanical equivalents thereof functioning in substantially the same way to produce substantially the same results. As noted by the Court of Appeals for the Federal Circuit in *Lindemann Maschinenfabrick GmbH v. American Hoist and Derrick Co.*, 221 USPQ 481, 485 (Fed. Cir. 1984), in evaluating the sufficiency of an anticipation rejection under 35 U.S.C. § 102, the Court stated:

> Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim.

Therefore, if the cited reference does not disclose each and every element of the claimed invention, then the cited reference fails to anticipate the claimed invention and, thus, the claimed invention is distinguishable over the cited reference.

U.S. Patent No. 6,294,821 to Heller (Claims 1, 2, and 15)

Claims 1, 2, and 15 have been rejected under 35 U.S.C. §102(e) as allegedly being anticipated by the disclosure contained in Heller. Claim 15 has been canceled by the amendments to the claims above and its features have been incorporated into independent Claim 1. Therefore, the rejection of Claims 1 and 2 will be addressed hereinbelow. It is respectfully submitted that this rejection is improper because the claimed invention as set forth in Claim 1, as amended, and Claims 2 and 3 are patentably distinguishable over the disclosure contained in the Heller document.

Claim 1, as amended, pertains to a method for improving performance of liquid-type fuel cells. In the method, a liquid-type fuel cell having a fuel and a platinum-based catalyst is provided. In addition, a fuel additive is incorporated into the fuel to reduce CO poisoning to the platinum-based catalyst, in which, the fuel additive is pre-packed for field use.

Heller discloses a fuel cell that uses biological fluid, such as hemoglobin and other fluids, as the fuel for the fuel cell. More particularly, Heller discloses that the "fuel cell may be configured for implantation into a person or animal to operate an electrical device". (column 2, lines 60-65). Therefore, the fuel used in the fuel cell is delivered into the fuel cell once the fuel cell is implanted into a person or animal. In addition, there does not appear to be any disclosure in Heller where a fuel additive to reduce CO poisoning to a platinum-based catalyst is pre-packed in the fuel cell. Instead, as clearly seen from the above, the fuel in

Heller is supplied into the fuel cell only after it has been implanted into a person or animal. Moreover, Heller discloses that the use of biological fluids of a person or animal in the fuel cell "provides a replenishing source of reactants for the fuel cell." (column 3, line 7). Therefore, Heller is focused on providing a replenishing fuel source for the fuel cell, which substantially differs from the elements contained in Claim 1 of the present invention. In fact, Heller actually teaches away from pre-packing a fuel additive to reduce CO poisoning to the platinum-based catalyst.

Consequently, Heller at least fails to disclose that the fuel additive to reduce CO poisoning to the platinum-based catalyst is pre-packed for field use and therefore fails to anticipate the claimed invention as set forth in Claim 1. The Official Action has, therefore, failed to meet the requirements of anticipation under 35 U.S.C. § 102.

Accordingly, at least by virtue of the failure in the disclosure of Heller to include all of the features contained in Claim 1 of the present invention, Heller cannot anticipate Claim 1, and, thus, the claimed invention as set forth in Claim 1 is distinguishable over Heller. Claims 2 and 3 depend upon allowable Claim 1 and are also allowable at least by virtue of their dependencies.

U.S. Patent Publication No. 2001/0038934 to Berlowitz et al. (Claims 4-6, 16, and 17)

Claims 4-6, 16 and 17 have been rejected under 35 U.S.C. §102(e) as allegedly being anticipated by the disclosure contained in Berlowitz et al. It is respectfully submitted that this rejection is improper because the claimed invention as set forth in Claim 4, and the claims that depend therefrom are patentably distinguishable over the disclosure contained in the Berlowitz et al. document.

Berlowitz et al. discloses a fuel cell system that uses an emulsified fuel. Berlowitz et al. discloses that a "fuel and water emulsion is capable of supplying the necessary amount of water needed to perform the steam reforming and/or water gas shift reaction to decrease or eliminate the CO produced concomitantly with hydrogen production. (paragraph 9 of Berlowitz et al.).

Berlowitz et al., however, fails to disclose that the fuel cell has a liquid-catalyst interface and that a fuel additive is incorporated into the fuel to decrease interfacial tension of the liquid-catalyst interface as set forth in Claim 4 of the present invention. Berlowitz et al., therefore, cannot anticipate Claim 4 of the present invention.

Accordingly, at least by virtue of the failure in the disclosure of Berlowitz et al. to include each and every feature contained in Claim 4 of the present invention, Berlowitz et al. cannot anticipate Claim 4, and, thus, the claimed invention as set forth in Claim 4 is patentably distinguishable over Berlowitz et al. Claims 5, 6, 16, and 17 depend from allowable Claim 4 and are also allowable at least by virtue of their dependencies.

U.S. Patent No. 6,331,220 to Wagaman (Claims 4-6, 16, and 18-21)

Claims 4-6, 16, and 18-21 have been rejected under 35 U.S.C. §102(e) as allegedly being anticipated by the disclosure contained in Wagaman. It is respectfully submitted that this rejection is improper because the claimed invention as set forth in Claims 4, 7 and 10 and the claims that depend therefrom are patentably distinguishable over the disclosure contained in the Wagaman document.

Wagaman pertains to gas-generating liquid compositions that may be used in fuel cells. (col. 3, lines 50-51). Wagaman, however, does not specifically disclose a liquid-type

fuel cell having an electrode and a fuel. Nor does Wagaman disclose the incorporation of a fuel additive to a fuel to increase wettability of the electrode and to decrease interfacial tension of a liquid-catalyst interface as set forth in Claim 4 of the present invention. Wagaman also fails to disclose that a liquid-type fuel cell having a fuel is provided and that a fuel additive to reduce dissolved oxygen in the fuel is incorporated into the fuel as set forth in Claim 7 of the present invention. Wagaman further fails to show that a liquid-type fuel cell having a fuel, a catalyst, and electrolyte is provided and that a fuel additive to remove metal ions that are detrimental to the catalyst or electrolyte is incorporated into the fuel as set forth in Claim 10 of the present invention.

Accordingly, at least by virtue of the failure in the disclosure of Wagaman to include all of the features contained in Claims 4, 7, or 10 of the present invention, Wagaman cannot anticipate Claims 4, 7, or 10 and, thus, the claimed invention as set forth in Claims 4, 7, and 10 is distinguishable over Wagaman. The claims that depend upon allowable Claims 4, 7, and 10 are also allowable at least by virtue of their dependencies.

Claim Rejection Under 35 U.S.C. §103

The test for determining if a claim is rendered obvious by one or more references for purposes of a rejection under 35 U.S.C. § 103 is set forth in MPEP § 706.02(j):

> To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both

> be found in the prior art and not based on applicant's disclosure. *In re Vaeck,* 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Therefore, if the above-identified criteria are not met, then the cited reference(s) fails to render obvious the claimed invention and, thus, the claimed invention is distinguishable over the cited reference(s).

The Official Action sets forth a rejection of Claim 3 under 35 U.S.C. §103(a) as allegedly being unpatentable over the disclosure contained in Heller. This rejection is respectfully traversed because Heller fails to disclose the claimed invention as set forth in Claim 3.

The Official Action correctly notes that Heller fails to disclose that the amount of hemoglobin is in the range of 0.0001-1% by weight as set forth in Claim 3 of the present invention. In an effort to make up for this deficiency, the Official Action asserts that it would have been obvious to one of ordinary skill in the art to employ the hemoglobin in these amounts on the basis that "discovering the optimum or working ranges involves only routine skill in the art." The Applicants respectfully disagree with this assertion because there is nothing to show that the fuel cell disclosed in Heller would operate under these conditions and therefore there is no motivation to modify Heller in the manner suggested in the Official Action.

In addition, it is respectfully submitted that the proposed modification of Heller would not yield the present invention as set forth in Claim 3 of the present invention. For instance, even assuming for the sake of argument that it would have been obvious to modify Heller to include the features of Claim 3 of the present invention, the proposed modification would still fail to disclose all of the elements as set forth in independent Claim 1

Accordingly, Claim 3 of the present invention is patentably distinguishable over the disclosure contained in Heller. The Examiner is therefore respectfully requested to withdraw the rejection and to issue an allowance of Claim 3.

Newly Added Claim

Claim 22 has been added to further define the invention. Claim 22 is allowable for at least the reasons set forth above with respect to Claims 1 and 2. In addition, Claim 22 is allowable because Heller does not disclose a hemoglobin fuel additive that is in powder form. In addition, the fuel cell of Heller cannot use hemoglobin in powder form since Heller discloses that the fuel cell is implanted into a person or animal.

Conclusion

In light of the foregoing, withdrawal of the rejections of record and allowance of this application are earnestly solicited.

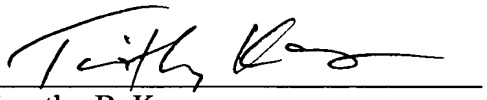
Should the Examiner believe that a telephone conference with the undersigned would assist in resolving any issues pertaining to the allowability of the above-identified application, please contact the undersigned at the telephone number listed below. Please

grant any required extensions of time and charge any fees due in connection with this request to deposit account no. 08-2025.

Respectfully submitted,

Alfred I-Tsung Pan

Dated: June 10, 2004

By 

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